

Amendments to the Claims:

Claim 1 (Amended): A system having a microfluidic channel structure in which fluids are able to interact to produce at least one product, and an automated closed-loop control mechanism to autonomously control a condition in, ~~or of,~~ the channel structure, the control mechanism having:

a sensor adapted to produce a sensor signal representative of a predetermined property of the at least one product which is dependent on the condition in, ~~or of,~~ the channel structure,

a transfer mechanism to transfer reagents from an array of reagents to the channel structure ~~means adapted to vary the condition in, or of, the channel structure,~~ and

a computer adapted to receive the sensor signal and to cause the ~~means to vary the condition in, or of, the channel structure in dependence of the sensor signal~~ transfer mechanism to change the reagent combination in the channel structure in dependence of the sensor signal.

Claim 2 (Original): The system of claim 1, wherein the sensor is adapted to produce a sensor signal representative of a predetermined chemical property of the at least one product.

Claim 3 (Original): The system of claim 1, wherein the sensor is adapted to produce a sensor signal representative of a predetermined biological property of the at least one product.

Claim 4 (Canceled).

Claim 5 (Canceled)

Claim 6 (Amended): The system of claim 1 ~~5~~ in which the operation of the transfer mechanism is controlled by the computer.

Claim 7 (Amended): The system of claim 1 5 further including the reagent array.

Claim 8 (Canceled)

Claim 9 (Canceled)

Claim 10 (Previously Presented): The system of claim 1 whose operation is fully automated.

Claim 11 (Amended): The system of claim 4 6, wherein the computer is programmed to operate the ~~control~~ transfer mechanism to produce a product of which the predetermined property satisfies a predetermined objective.

Claim 12 (Original): The system of claim 11, wherein the predetermined property is a chemical property and/or a physical property and/or a biological property.

Claim 13 (Previously Presented): The system of claim 1 provided that the control mechanism is not adapted to control a condition in the channel structure to provide an optimised yield of a product.

Claim 14 (Original): The system of claim 11, wherein the predetermined property is a chemical property and the predetermined objective relates to identity, purity, conversion, isomeric ratio, yield, impurity profile or colour.

Claim 15 (Original): The system of claim 11, wherein the predetermined property is a biological property and the predetermined objective relates to activity, potency, selectivity or duration.

Claim 16 (Canceled)

Claim 17 (Canceled)

Claim 18 (Previously Presented): The system of claim 1 which is an integrated, computer-controlled system.

Claim 19 (Canceled)

Claim 20 (Amended): A method of screening of chemical compounds implemented on the system of claim 11 comprising providing an array of ~~chemical compounds~~ reagents and programming the computer to operate the closed-loop control mechanism to autonomously run different combinations of the ~~compounds~~ reagents through the microfluidic channel structure until a ~~compound~~ combination results in a product having a predetermined biological property which satisfies a predetermined objective.

Claim 21 (Amended): The method of claim 20 in which the ~~compound~~ reagent array is categorised.

Claim 22 (Amended): The method of claim ~~19~~ 20 in which the computer operates the control mechanism heuristically.

Claim 23 (Canceled)

Claim 24 (New): The system of claim 1 adapted for screening for a product having a predetermined biological property which satisfies a predetermined objective, wherein the sensor is adapted to produce a sensor signal representative of the predetermined biological property and the computer is programmed with the predetermined objective and is adapted to compare the sensor signal with the predetermined objective and, in the event the comparison result is that the predetermined objective is not attained, to operate the transfer mechanism, in dependence of the sensor signal, to change the reagent combination in the channel structure in pursuit of attaining a product satisfying the predetermined objective.